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(54) **HEAD-MOUNTED DEVICE WITH AN ADJUSTABLE OPACITY SYSTEM**

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(57) **ABSTRACT**

A head-mounted device may have a transparent display. The transparent display may be formed from a display unit that provides images to a user through an optical coupler. A user may view real-world objects through the optical coupler while control circuitry directs the transparent display to display computer-generated content over selected portions of the real-world objects. The head-mounted display may also include an adjustable opacity system. The adjustable opacity system may include an adjustable opacity layer such as a photochromic layer that overlaps the optical coupler and a light source that selectively exposes the adjustable opacity layer to ultraviolet light to control the opacity of the adjustable opacity layer. The adjustable opacity layer may block or dim light from the real-world objects to allow improved contrast when displaying computer-generated content over the real-world objects.